

APPENDIX E:

Complete list of suspected sources of impairment and cause descriptions used in U.S. EPA's Assessment Database

Suspected Sources	Description of Suspected Causes of Impairment
Above Ground Storage Tank Leaks (Tank Farms)	Pollution from facilities that store and manage petroleum, hazardous substances, and hazardous waste in aboveground storage tanks (tank farms or tank batteries). This includes some facilities regulated under RCRA or with bulk storage reporting requirements under the TRI. Facilities can differ appreciably in size, ranging from small holding facilities similar to the "gas stations" that are the focus of EPA's Underground Storage Tank (UST) program up to the larger tank batteries found at oil refineries or other petrochemical plants. See background information in PETROLEUM TERMINALS AND BULK STORAGE FACILITIES (EPA 745-B-00-002); Protocol for Conducting Environmental Compliance Audits of Storage Tanks (EPA 300-B-00-006).
Acid Mine Drainage	Legacy impacts from inadequately reclaimed surface or underground mining, often related to historic coal mining operations. See background information in ACID MINE DRAINAGE PREDICTION (EPA 530-R-94-036).
Airports	EPA is considering effluent guidelines for pollutants such as de-icing agents associated with airport operations. SIC Group 45: Transportation by Air; see background information in Airport Deicing Operations (EPA-821-R-00-016).
Animal Feeding Operations (NPS)	Pollution from supplemental feeding of livestock. Including smaller operations that may not require permits. EPA, in cooperation with the USDA, is developing regulations for concentrated animal feeding operations (CAFOs). SIC Group 02: Agricultural Production - livestock. See background information in the USDA/EPA - Unified National Strategy for Animal Feeding Operations, March 9, 1999 < http://www.epa.gov/owm/finafost.htm >; CZARA management measures (EPA-840-B-92-002B).
Animal Shows and Racetracks	For period of time, animal shows (e.g., fairs) and race tracks can generate amounts of animal wastes comparable to feedlots. Can be viewed as falling under SIC Group 02: Agricultural Production - Livestock and Animal Specialties and/or SIC Group 79: Amusement and Recreation Services. CZARA management measures (EPA-840-B-92-002B) for agriculture often relevant. See also USDA/EPA - Unified National Strategy for Animal Feeding Operations, March 9, 1999 < http://www.epa.gov/owm/finafost.htm >
Aquaculture (Not Permitted)	Animal aquaculture where ample dilution water (e.g., cage culture in large lakes or embayments) or other factors would not require discharge permits or other regulatory measures. SIC Industry 02743: Animal Aquaculture. See background in EPA Expands Focus on Nutrient Pollution (EPA-821-F-00-002) < http://www.epa.gov/ost/guide/aquaculture/factsheet.html >

Suspected Sources	Description of Suspected Causes of Impairment
Aquaculture (Permitted)	EPA is considering rulemaking for types of aquatic animal production (fish, shellfish or other aquatic animals) where releases of water from ponds use for aquaculture into receiving waters could lead to use impairments. SIC Industry 02743: Animal Aquaculture. See background in EPA Expands Focus on Nutrient Pollution (EPA-821-F-00-002) < http://www.epa.gov/ost/guide/aquaculture/factsheet.html >
Atmospheric Deposition - Acidity	Pollution related to wet and dry atmospheric deposition containing acids (related to SO ₃ or NO _x air pollutants). See background information in National Science and Technology Council 1998. National Acid Precipitation Assessment Program Biennial Report to Congress: An Integrated Assessment. Committee on Environment and Natural Resources (CENR).
Atmospheric Deposition - Nitrogen	Pollution involving ammonia or other nitrogen-containing contaminants from wet or dry atmospheric deposition. See background information in -- Deposition of Air Pollutants to the Great Waters: Third Report to Congress (EPA-453/R-00-005).
Atmospheric Deposition - Toxics	Pollution involving toxics from wet or dry atmospheric deposition. See background information in -- Deposition of Air Pollutants to the Great Waters: Third Report to Congress (EPA-453/R-00-005).
Auction Barns and Off-farm Animal Holding/Management Area	Facilities where lots of animals sold - often on a consignment basis involving exchanges between farmers. SIC Group 02: Agricultural Production - Livestock and Animal Specialties; SIC Group 07: Agricultural Services. Can resemble feedlots although not usually operated continuously. CZARA management measures (EPA-840-B-92-002B) for agriculture often relevant. See also USDA/EPA - Unified National Strategy for Animal Feeding Operations, March 9, 1999 < http://www.epa.gov/owm/finafost.htm >
Ballast Water Releases	EPA coordinates with other agencies (e.g., the Coast Guard) to mitigate pollution and introduction of invasive species from ship ballast water. SIC Group 44: Water Transportation. Coast Guard Ballast Water Management initiatives < http://www.uscg.mil/hq/g-m/mso/mso4/bwbrochure.html >
Baseflow Depletion from Groundwater Withdrawals	One consequence of over-drafting (over-pumping) of alluvial or other aquifers that provide baseflow to streams. See background information in Safe Drinking Water Act, Section 1429 Ground Water Report to Congress (EPA-816-R-99-016).
Brownfield (Non-NPL) Sites	Pollution from abandoned, idled, or under-used industrial and commercial facilities (brownfields) that may not be covered under RCRA or CERCLA. See background information in Brownfields Economic Redevelopment Initiative (EPA540-R-98-021).
Cargo Loading/Unloading	Pollution (often spills) related to commercial cargo loading/unloading at harbors and ports. SIC Group 44: Water Transportation. See background information in Profile of the Water Transportation Industry (EPA/310-R-97-003).

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CERCLA NPL (Superfund) Sites	Pollution related to releases or discharges from waste sites on the CERCLA (SUPERFUND) National Priority List (NPL). See back ground information in -- Ground Water Cleanup at Superfund Sites (EPA540-K-96 008); Presumptive Remedy for CERCLA Municipal Landfill Sites (EPA 540-F-93-035); Reporting Requirements for Continuous Releases of Hazardous Substances (EPA 540-R-97-047).
Changes in Ordinary Stratification and Bottom Water Hypoxia/Anoxia	Pollution related to depletion of oxygen in bottom waters of estuaries or other coastal waters leading to hypoxia or anoxia. Similar limnological phenomena are also encountered with inland lakes and reservoirs. See background information in -- LISS: Phase III Actions for Hypoxia Management (EPA 902-R-98-002); Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras (EPA-822-R-00-012); Nutrient Criteria Technical Guidance Manual Lakes and Reservoirs (EPA-822-B00-001)
Changes in Tidal Circulation/Flushing	Pollution related to changes in tidal flushing or circulation patterns encountered in estuarine settings. Decreases in tidal flushing can accentuate pollutant effects in marina settings in coastal areas. See background information in -- Estuarine and Coastal Marine Waters: Bioassessment and Biocriteria Technical Guidance (EPA-822-B-00-024); CZARA management measure guidance (EPA-840-B-92-002B).
Channel Erosion/Incision from Upstream Hydromodifications	Impacts in patterns in channel incision/erosion related to construction of upstream dams. See background information in Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG) A 57.6/2:EN 3/PT.653.
Channelization	Impacts resulting from straightening, dredging, and the entrenchment within levees or pilot channels of natural river systems. See background information in Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG) A 57.6/2:EN 3/PT.653; CZARA management measure guidance (EPA-840-B-92-002B).
Clean Sediments	Pollution involving excessive "clean" sediment. EPA is pursuing the development of national water quality criteria guidance on clean sediments. See background information in Protocol for Developing Sediment TMDLs (EPA 841-B-99-004).
Coal Mining Discharges (Permitted)	Hardrock, Non-metals and coal mining activities can be subject to NPDES industrial permitting (usually general permits). See background information at < http://cfpub.epa.gov/npdes/home.cfm?program_id=8 >: Storm Water Phase II Final Rule would also apply - summary in EPA-833/F-00-001.
Combined Sewer Overflows	Can involve around 900 urban areas lacking separated storm water sewers. See background information in CSO Control Policy in 59 Fed. Reg. 18688 -- also published in (EPA- 830/B-94-001). See also Combined Sewer Overflow Technology Fact Sheet (EPA-832/F-99-008).

Suspected Sources	Description of Suspected Causes of Impairment
Commercial Districts (Industrial Parks)	Areas showing appreciable levels of impervious surfaces with large warehouses, freight terminals or manufacturing plants. Relevant information in CZARA management measure guidance (EPA-840-B-92-002B); (NURP) Nationwide Urban Runoff Program (EPA-841-S-83-109). See also Storm Water Phase II Final Rule: An Overview (EPA-833/F-00-001)
Commercial Ferries	Pollution (often spills) related to commercial ferry operations. SIC Group 44: Water Transportation. See background information in Profile of the Water Transportation Industry (EPA/310-R-97-003).
Commercial Districts (Shopping/Office Complexes)	Related to areas with appreciable amounts of land with impervious surfaces related to shopping malls or office parks, often in suburbs. Relevant information in CZARA management measure guidance (EPA-840-B-92-002B); (NURP) Nationwide Urban Runoff Program (EPA-841-S-83-109). See also Storm Water Phase II Final Rule: An Overview (EPA-833/F-00-001) Controlling NPS Runoff Pollution from Roads, Highways, and Bridges (EPA-841-F-95-008a)
Construction Stormwater Discharge (Permitted)	NPDES provisions under new Phase II Storm Water Permitting (EPA-833/F-00-001); descriptions involving nonpoint source pollution aspects in CZARA management measure guidance (EPA-840-B-92-002B) or in technical information from the Nationwide Urban Runoff Program (EPA-841-S-83-109).
Contaminated Sediments	Impacts related to elevated levels of pollutants such as PCBs in sediments. See background information in National Sediment Quality Survey (EPA 823-R-97-006); EPA's Contaminated Sediment Management Strategy < www.epa.gov/OST/cs/manage/stratndx.html >
Cooling Water Intake Structures (Impingement or Entrainment)	Water withdrawals where physical damage can harm aquatic life (e.g., stocks of fishes such as rockfish). See overview of the new cooling intake regulations in EPA-821-F-00-008.
Crop Production with Subsurface Drainage	Dryland agriculture with subsurface drains or other water level adjustment technologies involving crops from SIC Group 01 (Agricultural Production - Crops); see sections on agriculture from CZARA management measure guidance (EPA-840-B-92-002B); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
Dairies (Outside Milk Parlor Areas)	Holding or feeding areas, stabilization lagoons and pastures for dairy cows. May often resemble large cattle feedlots. See information in CZARA management measure guidance (EPA-840-B-92-002B). See also USDA/EPA - Unified National Strategy for Animal Feeding Operations, March 9, 1999 < http://www.epa.gov/owm/finafost.htm >
Dam Construction (Other than Upstream Flood Control Projects)	Pollution impacts on larger mainstem rivers in patterns in flood pulses, channel incision trends, water temperatures, or substrate particle size distribution related to construction of dams on mainstems or larger tributaries. See background information in Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG) A 57.6/2:EN 3/PT.653.
Discharges from Biosolids (SLUDGE) Storage, Application or Disposal	Can result from inadequate handling of sludge (now biosolids) derived from POTW wastewater treatment systems.
Discharges from Municipal Separate Storm Sewer Systems (MS4)	Involves pollution impacts from separate storm sewer systems -- see Storm Water Phase II Final Rule summary in EPA-833/F-00-001.

Suspected Sources	Description of Suspected Causes of Impairment
Discharges from Offshore Oil and Gas Exploration (Permitted)	NPDES Oil and gas exploration permitting required in Outer Continental Shelf; if within a 3 mile limit from shore or inland waters, EPA permitting coordinated with state permitting authorities. SIC Group 01: Oil and Gas Extraction. See information at http://cfpub.epa.gov/npdes/home.cfm?program_id=9
Drainage/Filling/Loss of Wetlands	Impacts from the loss of wetlands through drainage or filling. See background information in Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG) A 57.6/2:EN 3/PT.653; CZARA management measure guidance (EPA-840-B-92-002B).
Dredge Mining	A variation on placer mining, often involving the removal of materials from stream beds, usually related to gold mining. See background information in EXTRACTION AND BENEFICIATION OF ORES AND MINERALS, VOLUME 6, GOLD PLACERS (EPA 530-R-94-035).
Dredging (E.g., for Navigation Channels)	Alterations in river or harbor channels, usually to improve system for navigation. Where dredge materials contains pollutants (contaminated sediments), or where loss of wetlands is involved, CWA Section 404 permitting or processes under CERCLA provisions may apply. See background information in THE DREDGING PROCESS IN THE UNITED STATES (U.S. DOT 1994) http://www.epa.gov/owow/oceans/ndt/report.html
Drought-related Impacts	Drought episodes, which in some cases can last several years, can deplete water supplies and accentuate pollution problems affecting human and ecological health. See background information in FEMA (1996) - Findings of the Multi-State Drought Task Force http://enso.unl.edu/ndmc/impacts/fematf.htm
Dry Weather Flows with NPS Pollutants	Especially in arid climates, wash water, landscape watering, draining of swimming pools or other nonpoint source activities can introduce significant pollutant loadings directly into receiving waters or indirectly through storm sewers. See background information in Environmental Regulations and Technology: The National Pretreatment Program (EPA-625/10-86-005); Storm Water Phase II Final Rule: An Overview (EPA-833/F-00-001)
Erosion from Derelict Land (Barren Land)	Pollution from derelict (barren) land. Barren (or derelict) land is a land cover category used in the USDA National Resource Inventory. The USDA definition is: A Land Cover/Use category used to classify lands with limited capacity to support life and has less than 5 percent vegetative cover. Vegetation, if present, is widely spaced. Typically, the surface of barren land is sand, rock, exposed subsoil, or salt affected soils. Sub-categories include salt flats; sand dunes; mud flats; beaches, bare exposed rock; quarries, strip mines, gravel pits, and borrow pits; river wash; oil wasteland; mixed-barren lands; and other barren land. See information from USDA 2000. 1997 National Resources Inventory. USDA, NRCS. (also 1992 NRI). GIS layer and metadata from 1992 NRI available at http://www.nhq.nrcs.usda.gov/land/meta/m2327.html

Suspected Sources	Description of Suspected Causes of Impairment
Flow Alterations from Water Diversions	Impacts related to water diversions from such activities as irrigation farming. See background information in CZARA management measure guidance (EPA-840-B-92-002B); Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG) A 57.6/2:EN 3/PT.653.
Forest Roads (Road Construction and Use)	A component in larger-scale forestry operations usually addressed under state forest practices laws or falling under USDA FS or DOI BLM stewardship on federal lands. See background information in CZARA management measure guidance (EPA-840-B-92-002B); Summary of Current State Nonpoint Source Control Practices for Forestry (EPA-841/S-93-001); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
Freshettes or Major Flooding	Pollution impacts accentuated by flooding from large rainfall events (e.g., hurricanes). Loadings and salinity changes to Chesapeake Bay from Hurricane Agnes in 1972 are an example. See background information in Estuarine and Coastal Marine Waters: Bioassessment and Biocriteria Technical Guidance (EPA-822-B-00-024).
Golf Courses	Pollution effects from operation of golf course facilities. See background information in CZARA management measure guidance (EPA-840-B-92-002B); A Sourcebook for Natural Landscaping for Public Officials. Northeastern Illinois Planning Commission for EPA GLNPO (1997) < http://www.epa.gov/glnpo/greenacres/toolkit/index.html >
Grazing in Riparian or Shoreline Zones	Livestock production using relatively unmanaged grasslands in proximity to riparian zones or shorelines. See sections in CZARA management measure guidance (EPA-840-B-92-002B); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001.)
Hardrock Mining Discharges (Permitted)	Hardrock, Non-metals and coal mining activities can be subject to NPDES industrial permitting (usually general permits). See background information at < http://cfpub.epa.gov/npdes/home.cfm?program_id=8 >; Storm Water Phase II Final Rule would also apply - summary in EPA-833/F-00-001.
Heap-leach Extraction Mining	Technology where large amounts of mined ore, often filling entire valleys ("valley heap leach"), are treated with cyanide and water to help extract enriched slurries from the ores. SIC Division B - Mining. See background information in TREATMENT OF CYANIDE HEAP LEACHES AND TAILINGS (EPA 530-R-94-037).
Highway/Road/Bridge Runoff (Non-construction Related)	Pollution effects from established infrastructures such as highways and bridges. In cities, roads and bridges add to the area in impervious surfaces. In rural areas, infrastructure such as bridges can alter geofluvial processes. See materials in CZARA management measure guidance (EPA-840-B-92-002B)
Highways, Roads, Bridges, Infrastructure (New Construction)	New construction involving infrastructure (roads, bridges, pipelines, etc.) or buildings. SIC Group 16: Heavy Construction; also Group 15: Building Construction. Relevant information in CZARA management measure guidance (EPA-840-B-92-002B). Various aspects of construction activities now regulated under the Phase II Stormwater Regulations -- see Storm Water Phase II Final Rule: An Overview (EPA-833/F-00-001) < http://www.epa.gov/npdes/pubs/fact1-0.pdf >

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Historic Bottom Deposits (Not Sediment)	Legacy pollution effects not related to clean sediment and involving a variety of "free from" factors related to a range of pollution issues. EPA is pursuing the development of national water quality criteria guidance on clean sediments. See background information in Protocol for Developing Sediment TMDLs (EPA 841-B-99-004).
Hydrostructure Impacts on Fish Passage	Impacts related to structures ranging from culverts to dams that lack fish passage features and eliminate spawning habit access for anadromous or catadromous fish. Species range from Pacific salmon to Atlantic rockfish and shad. See pertinent background information on fish passage mitigation goals in the Chesapeake Bay area in FISH PASSAGE GOALS (EPA-903-F-93-002); see also CZARA management measure guidance (EPA-840-B-92-002B).
Illegal Dumping	Materials ranging from tires, old appliance and other solid wastes to small quantities of hazardous materials or other waste and refuse -- usually dumped from trucks or similar vehicles in or near receiving waters. See "Illegal Dumping Prevention Guidebook" and materials at the following EPA Region 5 Web site: < http://www.epa.gov/region5/dmpguide.htm >
Illegal Dumps or Other Inappropriate Waste Disposal	Pollution releases to receiving waters from localized "hot-spots" involving illegal disposal of solid wastes or other wastes that may contain conventional or hazardous pollutants or that can degrade aquatic habitats or otherwise impair aesthetic amenities. See background information in Illegal Dumping Prevention Guidebook (EPA Region 5) < http://www.epa.gov/region5/dmpguide.htm >; Storm Water Phase II Final Rule: An Overview (EPA-833/F-00-001).
Illicit Connections/Hook-ups to Storm Sewers	Illicit connections to storm sewers, along with most previously permitted storm sewer discharges, are to be phased out and replaced with connections to sanitary sewers with adequate pretreatment. Environmental Regulations and Technology: The National Pretreatment Program (EPA-625/10-86-005); Storm Water Phase II Final Rule: An Overview (EPA-833/F-00-001) < http://www.epa.gov/npdes/pubs/fact1-0.pdf >.
Impacts from Abandoned Mine Lands (Inactive)	Legacy impacts from inadequately reclaimed surface or underground mining, often related to historic coal or other mineral mining operations resulting in releases of cyanide, heavy metals, and acid generated from mine waste. See background materials in COAL REMINING BEST MANAGEMENT PRACTICES GUIDANCE MANUAL (EPA 821-R-00-007); ACID MINE DRAINAGE PREDICTION (EPA 530-R-94-036)
Impacts from Geothermal Development	Pollution effects from geothermal development could potentially lead to contamination of the geothermal groundwater from certain types of UIC Class V wells. Since water from geothermal formation can include elevated levels of chemicals such as arsenic, geothermal development could results in releases of water with high arsenic levels to other surface waters. Finally, there may be concerns that geothermal development may have impacts affecting geohydrological process over a large watershed and/or ground-water formations. See background information in -- The Class V Underground Injection Control Study; Volume 18: Geothermal Direct Heat Return Flow Wells (EPA- 816/R-99-014r).

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Impacts from Hydrostructure Flow Regulation/modification	Impacts from flow regime alterations (anthropogenic sources, e.g., decrease in flood pulses due to hydrostructures). See background information in Federal Interagency Stream Restoration Working Group (ISRWG). 1998 (Updated 2001). Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG)(15 Federal agencies of the US gov't). GPO Item No. 0120-A; SuDocs No. A 57.6/2:EN 3/PT.653
Impacts from Land Application of Wastes	Pollution from inappropriate management of land application systems that may involve mixtures of municipal, industrial (toxic), and agricultural wastes. See background information in Guide to Biosolids for the EPA Part 503 Rule (EPA-832-B-93-005); Introduction to (RCRA) Land Disposal Units (EPA-530-R-99-054); Municipal Solid Waste Generation (EPA-530-F-00-024); RCRA Orientation Manual (EPA- 530-R-98-004).
Impacts from Resort Areas (Winter and Non-winter Resorts)	Pollution impacts from resort development or operations (e.g., ski resorts) ranging from increased erosion to habitat alterations to impacts similar to those in urbanized areas. These are often documented through NEPA review by EPA or state agencies. See the EPA Office of Federal Programs Web site < http://es.epa.gov/oeca/ofa/ > for an online repository of EPA EIS comments, which include comments on impacts (water or air pollution) related to resort areas.
Industrial Land Treatment	Inadvertent pollution related to the land application or "land farming" of industrial wastes, often containing hazardous substances. The intended aim is often a disposal process in which hazardous waste or petroleum wastes deposited on or in the soil is degraded naturally by microbes. See background information in Introduction to (RCRA) Land Disposal Units (EPA-530-R-99-054); How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites: A Guide for Corrective Action Plan Reviewers (EPA 510-B-95-007).
Industrial Point Source Discharge	End-of-pipe NPDES permitting for discharges other than publicly owned treatment works (POTWs -- or "municipal" dischargers). See effluent guidelines for certain industrial groups in 40 CFR - Subchapter N - Effluent Guidelines and Standards. Additional background information in Industrial User Permitting Guidance Manual (EPA-833/R-89-001); NPDES Permit Writer's Manual (EPA-833-B-96-003)
Industrial Thermal Discharges	Changes in receiving water temperature related to effluents from such industrial types as utilities. See background information in EPA-833/R-89-001 or EPA-833-B-96-003.
Industrial/Commercial Site Stormwater Discharge (Permitted)	NPDES provisions under new Phase II Storm Water Permitting (EPA-833/F-00-001); descriptions involving nonpoint source pollution aspects in CZARA management measure guidance (EPA-840-B-92-002B) or in technical information from the Nationwide Urban Runoff Program (EPA-841-S-83-109).
Internal Nutrient Recycling	Persistent pollution problems related to reintroduction of nutrients such as phosphorus from sediments within a water body. Often related to past history of pollution loadings. Found in lakes that show seasonal "turnover" -- also encountered in some estuaries. See background information in -- Phosphorus Inactivation and Wetland Manipulation, Kezar Lake, NH (EPA 841-F-95-002).

Suspected Sources	Description of Suspected Causes of Impairment
Irrigated Crop Production	Farming with supplemental irrigation involving crops from SIC Group 01 (Agricultural Production - Crops); see sections on agriculture from CZARA management measure guidance (EPA-840-B-92-002B); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
Land Application of Wastewater (Non-agricultural)	Pollution from inappropriate management of land application systems using municipal wastewater in reclaimed water recycling systems or in constructed wetlands. See background information in Constructed Wetlands for Wastewater Treatment and Wildlife Habitat: 17 Case Studies (EPA832-R-93-005); Guidelines for Water Reuse. US EPA Office of Technology Transfer and Regulatory Support. EPA/625/R-92/004
Land Application of Wastewater Biosolids (Non-agricultural)	Pollution from inappropriate land application of sludges or other biosolids residues from municipal wastewater plants as soil conditioners. A major concern is often toxics such as cadmium in the biosolids where biosolids are applied to agricultural land growing crops for human consumption. See background information in -- A Guide to the Biosolids Risk Assessments for the EPA Part 503 Rule (EPA-832-B-93-005)
Landfills	Pollution from leachates or other release from landfills. See background information in Municipal Solid Waste Generation (EPA-530-F-00-024); RCRA Orientation Manual (EPA-530-R-98-004).
Leaking Underground Storage Tanks	Most commonly gasoline leaks from filling station storage tanks with older single-lined tanks. Safe Drinking Water Act, Section 1429 Ground Water Report to Congress (EPA-816-R-99-016); Report to Congress: Compliance Plan for the Underground Storage Tank Program (EPA-510-R-00-001).
Littoral/shore Area Modifications (Non-riverine)	Impacts from modifications to littoral/shoreline areas around lakes, estuaries and other non-riverine water body types. See background information in Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG) A 57.6/2:EN 3/PT.653; CZARA management measure guidance (EPA-840-B-92-002B).
Loss of Riparian Habitat	Impacts from removal of riparian habitat (vegetation, snags, undercut banks, and so forth). See background information in Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG) A 57.6/2:EN 3/PT.653; CZARA management measure guidance (EPA-840-B-92-002B).
Managed Pasture Grazing	Livestock production using managed grasslands that will usually be mown for hay. See sections in CZARA management measure guidance (EPA-840-B-92-002B); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001.)
Marina Boat Construction	Pollution related to construction of recreational boats. See CZARA management measure guidance (EPA-840-B-92-002B).
Marina Boat Maintenance	Pollution related to maintenance of recreational boats. See CZARA management measure guidance (EPA-840-B-92-002B).

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Marina Dredging Operations	Pollution related to erosion from dredging operations around marina facilities. See background in CZARA management measure guidance (EPA-840-B-92-002B).
Marina Fueling Operations	Pollution related to leakage or spills form boat fuel from marina facilities. See background in CZARA management measure guidance (EPA-840-B-92-002B).
Marina-related Shoreline Erosion	Pollution related to erosion from marina facilities in shoreline areas. See background in CZARA management measure guidance (EPA-840-B-92-002B).
Marina/boating Pumpout Releases	The Clean Water Act No Discharge Zone (NDZ) petition process -- see Clean Water Act Section 312(f)(3-4) -- and other federal and state programs address pollution from sanitary waste pumpout releases from marinas or boats. See also CZARA management measure guidance (EPA-840-B-92-002B); Vessel Sewage Discharges (EPA/842/B-96/001)
Marina/Boating Sanitary On-vessel Discharges	The Clean Water Act No Discharge Zone (NDZ) petition process -- see Clean Water Act Section 312(f)(3-4) -- and other federal and state programs address pollution from sanitary waste releases from marinas or boats. See also CZARA management measure guidance (EPA-840-B-92-002B); Vessel Sewage Discharges (EPA/842/B-96/001)
Mill Tailings	Pollution from residues separated out during the processing of mineral ores at a milling facility where the raw ores are crushed. Mill tailings are not always found in proximity to the sites form which the raw ores were extracted if the ores are valuable enough to transport to special milling sites. For instance, uranium ores are often processed at special milling sites. The physical and chemical nature of mill tailings are derived from a slurry of fine-grained rock material and process water as ore-bearing materials are separated from the mined rock using flotation techniques. In modern mining operations, liquid is removed from the tailings slurry in thickeners, and the thickened tailings are discharged to tailings impoundments. See background information for mill tailings produced in uranium ore processing in Extraction and Beneficiation of Ores and Minerals: Volume 5: Uranium (EPA 530-R-94-032).
Mine Tailings	Pollution from residues separated out during the processing of mineral ores. Mine tailings are usually found in close proximity to the sites from which the raw ores were extracted. The physical and chemical nature of Mine tailings are derived from a slurry of fine-grained rock and process water as ore-bearing materials are separated from the mined rock using flotation techniques. In modern mining operations, liquid is removed from the tailings slurry in thickeners, and the thickened tailings are discharged to tailings impoundments. In historic mining operations, the tailing slurries would sometimes be dumped near riparian areas, where rainfall could wash or leach fines and toxic metals into receiving waters. See background information for tailings produced in copper mining in EXTRACTION AND BENEFICIATION OF ORES AND MINERALS, VOLUME 4, COPPER (EPA 530-R-94-031).
Mountaintop Mining	Water quality impact from new technologies that remove large amount of materials (whole "mountain tops") to expose coal or other mineral deposits. Mining wastes put in "valley fill" holding areas. See background in FR Doc. 99-2845 Filed 2-4-99 -- joint Federal/WV EIS; also EPA Region 3 WEB site at < http://www.epa.gov/region03/mtntop/index.htm >

Suspected Sources	Description of Suspected Causes of Impairment
Municipal (Urbanized High Density Area)	High density ("ultra-urban") areas in cities and towns (e.g., central business districts) with high percentages of impervious surfaces. Relevant information in CZARA management measure guidance (EPA-840-B-92-002B); (NURP) Nationwide Urban Runoff Program (EPA-841-S-83-109). See also Storm Water Phase II Final Rule: An Overview (EPA-833/F-00-001) < http://www.epa.gov/npdes/pubs/fact1-0.pdf >
Municipal Point Source Discharges	Pollution introduced from end-of-pipe discharges from publicly owned treatment works (POTWs). See background information in (EPA 833-B-96-003).
Municipal Point Source Impacts from Inadequate Industrial/Commercial Pretreatment	Small industries and commercial establishments are expected to pretreat wastes before they are introduced into sanitary sewer systems connected to POTWs. Inadequate pretreatment can contribute to wastewater treatment plant upsets or to the line blockages and other symptoms associated with SSOs. See background information in -- Environmental Regulations and Technology: The National Pretreatment Program (EPA-625/10-86-005).
Non-irrigated Crop Production	Dryland farming involving crops from SIC Group 01 (Agricultural Production - Crops); see sections on agriculture from CZARA management measure guidance (EPA-840-B-92-002B); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
Non-metals Mining Discharges (Permitted)	Hardrock, Non-metals and coal mining activities can be subject to NPDES industrial permitting (usually general permits). See background information at < http://cfpub.epa.gov/npdes/home.cfm?program_id=8 >; Storm Water Phase II Final Rule would also apply - summary in EPA-833/F-00-001.
NPS Pollution from Military Base Facilities (Other than Port Facilities)	Pollution from military base facilities (other than ports). SIC Group 97: National Security and International Affairs.
NPS Pollution from Military Port Facilities	Pollution from military port facilities. SIC Group 97: National Security and International Affairs.
Off-road Vehicles	Pollution effects from off-road vehicles (ORVs) either magnifying erosion in watershed or damage to habitats when ORVs allowed in riparian areas or in water courses. See background information on ORV concerns for Canaan Valley, West Virginia, in -- A Phase 1 Inventory of Current EPA Efforts to Protect Ecosystems (EPA-841-S-95-001) - Canaan Valley, WV, materials at < http://www.epa.gov/ecoplaces/part2/region3/site2.html >
On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Problems from poorly installed or maintained onsite domestic waste treatment systems (septic systems or other small flows decentralized systems). See background information in Safe Drinking Water Act, Section 1429 Ground Water Report to Congress (EPA-816-R-99-016); Small Systems Manual: Wastewater Treatment/Disposal for Small Communities (EPA-625/R-92-005); Onsite/Septic systems Design Manual: Onsite Wastewater Treatment and Disposal Systems (EPA-625/1-80-012)
Open Pit Mining	Pollution impacts from open pit mining. Technology exemplified by the Berkeley Pit at Butte, Montana -- often used for mining ores such as copper. See background information in EXTRACTION AND BENEFICIATION OF ORES AND MINERALS, VOLUME 4, COPPER (EPA 530-R-94-031).

Suspected Sources	Description of Suspected Causes of Impairment
Other Marina/Boating On-vessel Discharges	Marinas and boating activities can lead to various pollution releases (e.g., debris and plastic container wastes) in addition to sewage and pumpout wastes. See -- Coastal Debris (EPA-842-H-92-001); CZARA management measure guidance (EPA-840-B-92-002B).
Other Recreational Pollution Sources	Pollution from other recreational-related activities not covered under resorts or public bathing areas. Could include pollution from human activities on hiking trails.
Other Shipping Releases (Wastes and Detritus)	EPA coordinates with other agencies to mitigate impacts from dumping of wastes and detritus from commercial ships. See -- Coastal Debris (EPA-842-H-92-001)
Other Spill Related Impacts	Pollution from spills that cannot be clearly tied to releases from waste sites, pipeline breaks, spills from trucks or trains, or illegal ("midnight") dumping.
Other Turf Management	Pollution effects from lawns and similar horticultural plantings in public areas or commercial open space landscape areas (parks, greenways, open spaces, etc.). See background information in CZARA management measure guidance (EPA-840-B-92-002B); A Sourcebook for Natural Landscaping for Public Officials. Northeastern Illinois Planning Commission for EPA GLNPO (1997) < http://www.epa.gov/glnpo/greenacres/toolkit/index.html >
Package Plant or Other Permitted Small Flows Discharges	Treatment systems for small communities or rural schools that often operate only intermittently and often come as "kits" that can be easily installed and operated without trained supervision. Over time, these small "package plants" may show poor treatment efficiency if not maintained properly. See background information in (EPA 833-B-96-003) and (EPA-625/R-92-005)
Permitted Runoff from Confined Animal Feeding Operations (CAFOs)	Supplemental feeding of livestock that can lead to major nutrient and other pollution concerns as animal unit densities increase. EPA, in cooperation with the USDA, is developing regulations for concentrated animal feeding operations (CAFOs). SIC Group 02: Agricultural Production - livestock. See background information in the USDA/EPA - Unified National Strategy for Animal Feeding Operations, March 9, 1999 < http://www.epa.gov/owm/finafost.htm >; CZARA management measures (EPA-840-B-92-002B).
Permitted Silvicultural Activities	Pollution from aspects of forestry operations requiring permits. SIC Group 08: Forestry. See background information in Guidance Specifying Measures for Sources of Nonpoint Pollution in Coastal Waters (EPA840-B-92-002B); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
Petroleum/natural Gas Activities	Pollution impacts related to petroleum (oil, asphalt, and so forth), brines, or excessive erosion cause by damage to soils and vegetation in areas with significant historic oil or gas production. Impacts often most noticeable in areas with shallow stripper wells. See background information in Profile of the Oil and Gas Extraction Industry (EPA/310-R-99-006).
Petroleum/natural Gas Production Activities (Permitted)	Pollution related to permitted aspects of petroleum and natural gas exploration/production. SIC Group 01: Oil and Gas Extraction. See background information in Profile of the Oil and Gas Extraction Industry (EPA/310-R-99-006).

Suspected Sources	Description of Suspected Causes of Impairment
Pipeline Breaks	EPA and the Coast Guard (with assistance from the Department of Energy, the Defense Department and technical advise form other federal agencies) provide on-scene coordinators (OSCs) through the National Response Center to mobilize coordinated federal, state and local response actions for pipeline spills impacting inland and coastal/marine waters. See background information in -- Understanding Oil Spills And Oil Spill Response (EPA 540-K-99-007); National Response Team - Hazardous Materials Emergency Planning Guide (NRT-1 -- 2000 Update)
Placer Mining	Use of high pressure hydraulic systems to expose ore bearing formations, often for gold mining. SIC Division B - Mining. See information in EXTRACTION AND BENEFICIATION OF ORES AND MINERALS, VOLUME 6, GOLD PLACERS (EPA 530-R-94-035).
Pollutants from Public Bathing Areas	Pollution related to non-boating recreational use of public bathing area. Often concerns over pathogen exposure risks related to such factors as inadequate control of domestic wastes (e.g., from on-site septic systems). See background information in EPA Action Plan for Beaches and Recreational Waters (EPA/600/R-98/079).
Post-development Erosion and Sedimentation	Post-construction impacts from land development in cities or urbanized areas. See information in CZARA management measure guidance (EPA-840-B-92-002B); (NURP) Nationwide Urban Runoff Program (EPA-841-S-83-109); and Storm Water Phase II Final Rule: An Overview (EPA-833/F-00-001) < http://www.epa.gov/npdes/pubs/fact1-0.pdf >
Rangeland Grazing	Livestock production using relatively unmanaged grasslands not ordinarily mown for hay. See sections in CZARA management measure guidance (EPA-840-B-92-002B); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
RCRA Hazardous Waste Sites	Pollution releases to receiving waters from RCRA Treatment Storage and Disposal Facilities (TSDFs). Handbook of Groundwater Protection and Cleanup Policies For RCRA Corrective Action (EPA530-F-01-021); Municipal Solid Waste Generation, Recycling and Disposal in the United States: Facts and Figures for 1998; RCRA Orientation Manual (EPA- 530-R-98-004).
Releases from Waste Sites or Dumps	Ground Water Cleanup at Superfund Sites (EPA540-K-96 008); Presumptive Remedy for CERCLA Municipal Landfill Sites (EPA 540-F-93-035); Reporting Requirements for Continuous Releases of Hazardous Substances (EPA 540-R-97-047)
Residential Districts	Areas where zoning laws may limit high density building or commercial centers, but where residential housing can still create a significant amount of impervious surfaces. See background information in CZARA management measure guidance (EPA-840-B-92-002B); (NURP) Nationwide Urban Runoff Program (EPA-841-S-83-109); and Storm Water Phase II Final Rule: An Overview (EPA-833/F-00-001) < http://www.epa.gov/npdes/pubs/fact1-0.pdf >
Salt Storage Sites	Usually related to runoff from stockpiles of sand /salt mixtures in urban areas used for winter ice removal on roads and bridges. See materials in CZARA management measure guidance (EPA-840-B-92-002B); Controlling NPS Runoff Pollution from Roads, Highways, and Bridges (EPA-841-F-95-008a.

Suspected Sources	Description of Suspected Causes of Impairment
Saltwater Intrusion from Groundwater Overdrafting	One consequence of over-drafting (over-pumping) of aquifers, especially common in coastal areas or on islands. See background information in Safe Drinking Water Act, Section 1429 Ground Water Report to Congress (EPA-816-R-99-016).
Sand/gravel/rock Mining or Quarries	Quarry operations produce a variety of "aggregates" used mainly for construction materials. Mining may in either upland settings or in floodplains or even within river channels. Old abandoned quarries have often attracted dumping of wastes, including toxics. Dredge and fill permits may be required for operations in close proximity to water bodies. See background information in EPA Office of Compliance Sector Notebook Project - Profile of the Non-Metal, Non-Fuel Mining Industry (EPA/310-R-95-011)
Sanitary Sewer Overflows (Collection System Failures)	EPA is developing rules for this combination of problems impacting centralized waste water systems. Overflows in sanitary sewer lines or major upsets at wastewater treatment plants can be related to poor maintenance in collection system interceptor lines (infiltration and inflow or line clogging), equipment failures at lift stations, or to inadequate pretreatment programs. See background information in -- Sanitary Sewer Overflows (EPA-832/K-96-001); The National Pretreatment Program (EPA-625/10-86-005).
Septage Disposal	Pollution from spills or other inappropriate handling of septage hauled from domestic or other onsite treatment systems. See background information in Onsite Wastewater Treatment and Disposal Systems (EPA-625/1-80-012); EPA National Small Flows Clearinghouse < http://www.nesc.wvu.edu/nsfc/nsfc_index.htm >
Shipbuilding, Repairs, Drydocking	Pollution (often spills) related to commercial shipbuilding and repair facilities. SIC Industry 3731: Ship Building; SIC Industry 2732: Boat Building. See background information in Profile of the Water Transportation Industry (EPA/310-R-97-003).
Silviculture - Large Scale (Industrial) Unpermitted Forestry	Larger-scale forestry operations (i.e., tracts larger than for non-industrial woodlots) not covered under permitting or other regulatory approaches under state forest practices laws or falling under USDA FS or DOI BLM stewardship on federal lands. See background information in CZARA management measure guidance (EPA-840-B-92-002B)
Silviculture Harvesting	A component in larger-scale forestry operations usually addressed under state forest practices laws or falling under USDA FS or DOI BLM stewardship on federal lands. See background information in CZARA management measure guidance (EPA-840-B-92-002B); Summary of Current State Nonpoint Source Control Practices for Forestry (EPA-841/S-93-001); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
Silviculture Plantation Management	A component in larger-scale forestry operations usually addressed under state forest practices laws or falling under USDA FS or DOI BLM stewardship on federal lands. See background information in CZARA management measure guidance (EPA-840-B-92-002B); Summary of Current State Nonpoint Source Control Practices for Forestry (EPA-841/S-93-001); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).

Suspected Sources	Description of Suspected Causes of Impairment
Silviculture Reforestation	A component in larger-scale forestry operations usually addressed under state forest practices laws or falling under USDA FS or DOI BLM stewardship on federal lands. See background information in CZARA management measure guidance (EPA-840-B-92-002B); Summary of Current State Nonpoint Source Control Practices for Forestry (EPA-841/S-93-001); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
Site Clearance (Land Development or Redevelopment)	Can involve new construction or redevelopment (infilling) in existing urbanized areas. Can also involve industrial parks or other construction outside municipal boundaries. Various activities under SIC Division C: Construction. Relevant information in CZARA management measure guidance (EPA-840-B-92-002B). Various aspects of construction activities now regulated under the Phase II Stormwater Regulations -- see Storm Water Phase II Final Rule: An Overview (EPA-833/F-00-001) < http://www.epa.gov/npdes/pubs/fact1-0.pdf >
Specialty Crop Production	Truck farming crops (e.g., fruits or fresh vegetables) or horticultural (ornamental) plants. Irrigation or chemigation often used. CZARA management measures (EPA-840-B-92-002B) for agriculture often relevant; Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
Spills from Trucks or Trains	EPA and the Coast Guard (with assistance from the Department of Energy, the Defense Department and technical advise form other federal agencies) provide on-scene coordinators (OSCs) through the National Response Center to mobilize coordinated federal, state and local response actions for spills from truck or trains impacting inland and coastal/marine waters. See background information in -- Understanding Oil Spills And Oil Spill Response (EPA 540-K-99-007); National Response Team - Hazardous Materials Emergency Planning Guide (NRT-1 -- 2000 Update)
Streambank Modifications/destabilization	Impacts -- often downstream of site with the initial disturbances -- from destabilization of stream banks or other modifications such as rip-rapping. See background information in Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG) A 57.6/2:EN 3/PT.653; CZARA management measure guidance (EPA-840-B-92-002B).
Subsurface (Hardrock) Mining	Pollution impacts related to subsurface mining operations. Subsurface, hardrock or underground mining involves construction of shafts, drifts, passages and other pathways from the surface to underground ore or mineral-bearing formations. Technology also leads to ore tailings and other wastes at the surface. See background information in EPA Office of Compliance Sector Notebook Project: Profile of the Metal Mining Industry (EPA/310-R-95-008).
Surface Mining	Removal of surficial soil and overburden to expose mineral-bearing deposits. Used extensively in coal mining. Can involve new mining or re-mining of older (or abandoned) mined lands. SIC Division B - Mining. See background material in COAL REMINING BEST MANAGEMENT PRACTICES GUIDANCE MANUAL (EPA 821-R-00-007); ACID MINE DRAINAGE PREDICTION (EPA 530-R-94-036).

Suspected Sources	Description of Suspected Causes of Impairment
Total Retention Domestic Sewage Lagoons	Application of stabilization lagoons for domestic waste no discharge systems as an alternative to septic systems. EPA National Environmental Services Center (NESC) Small Flows Clearinghouse < http://www.nesc.wvu.edu/nsfc/nsfc_index.htm >; Report to Congress: Municipal Wastewater Lagoon Study (EPA-832/R-87-108A and 108B).
UIC Wells (Underground Injection Control Wells)	There are 5 classes of Underground Injection Wells regulated under provisions of the Safe Drinking Water Act. Class V UIC wells (including cesspools and agricultural drainage wells) have considerable potential for ground water and surface water pollution. See background information in The Class V Underground Injection Control Study, 23 volumes + Appendix (EPA-816/R-99-014a-x); Underground Injection Wells and Your Drinking Water (EPA- 813/F-94-001).
Unpermitted Discharge (Domestic Wastes)	EPA Phase II Stormwater Rule provides incentives to identify illicit discharges and take steps provide for suitable water management (onsite systems or connecting to centralized systems). See background information in Illicit Discharge Detection and Elimination Minimum Control Measure (EPA-833-F-00-007)
Unpermitted Discharge (Industrial/commercial Wastes)	EPA Phase II Stormwater Rule provides incentives to identify illicit discharges and take steps to develop separate industrial discharge permits or suitable pretreatment. See background information in Illicit Discharge Detection and Elimination Minimum Control Measure (EPA-833-F-00-007)
Upstream Impoundments (e.g., PI-566 NRCS Structures)	Impacts on larger mainstem rivers in patterns in flood pulses, channel incision trends, or substrate particle size distribution related to construction of significant numbers of upstream flood control structures. See background information in Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG) A 57.6/2:EN 3/PT.653.
Wastes from Pets	Pet wastes are of particular concern in urbanized areas, where contaminants can enter storm sewers or otherwise introduce pollutants into receiving waters. See materials in CZARA management measure guidance (EPA-840-B-92-002B).
Waterfowl	Pollution impacts (often pathogen indicators-related) from waterfowl (e.g., ducks, geese, swans, etc.). See background information in Protocol for Developing Pathogen TMDLs (EPA 841-R-00-002).
Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)	Complex situation involving combinations of receiving water impacts from point source end-of-pipe discharges with wet weather contributions from CSOs, SSOs or storm sewer inputs -- this combined with other diffuse (nonpoint source) wet weather pollutant loadings.
Wildlife Other than Waterfowl	Pollution impacts (often pathogen indicators-related) from wildlife other than waterfowl (e.g., deer, rodents, etc.). See background information in Protocol for Developing Pathogen TMDLs (EPA 841-R-00-002).

Suspected Sources	Description of Suspected Causes of Impairment
Woodlot Site Clearance	A component in small-scale forestry operations on private land holdings. Where plots are very small, such practices may be hard to distinguish from site clearance for commercial land development. Usually not covered under state forestry practices laws. See background information in CZARA management measure guidance (EPA-840-B-92-002B); Summary of Current State Nonpoint Source Control Practices for Forestry (EPA-841/S-93-001).
Woodlot Site Management	A component in small-scale forestry operations on private land holdings. Where plots are very small, such practices may be hard to distinguish from site clearance for commercial land development. Usually not covered under state forestry practices laws. See background information in CZARA management measure guidance (EPA-840-B-92-002B); Summary of Current State Nonpoint Source Control Practices for Forestry (EPA-841/S-93-001); Profile of the Agricultural Crop Production Industry (EPA/310-R-00-001).
Yard Maintenance	Pollution from lawns, gardens, and other plantings on private residences or other areas around dwellings and buildings with areas in horticultural plantings. See background information in CZARA management measure guidance (EPA-840-B-92-002B); A Sourcebook for Natural Landscaping for Public Officials. Northeastern Illinois Planning Commission for EPA GLNPO (1997) < http://www.epa.gov/glnpo/greenacres/toolkit/index.html >
Source Unknown	Source Unknown. Insufficient data exists to be able to identify a source at this time.
Non-Point Source	Non-Point Source. Source is unknown, but there are no permitted point sources upstream.
Dam or Impoundment	Dam or Impoundment. An existing structure (not construction), either upstream or downstream of the impairment.
Livestock (Grazing or Feeding Operations)	Livestock (Grazing or Feeding Operations). Insufficient information exists to specifically identify a particular type of animal feeding operation. Includes grazing and unpermitted animal feeding operations. Also includes CAFOs until a permitted facility is identified.
Crop Production (Crop Land or Dry Land)	Crop Production (Crop Land or Dry Land). Insufficient information exists to identify a particular type of crop production. Can include any type of farming area planted in cropland.
Natural Conditions - Water Quality Standards Use Attainability Analyses Needed	Natural Conditions - Water Quality Standards Use Attainability Analyses Needed. Due to natural conditions, water cannot meet its assigned criteria. A use attainability analysis may need to be performed in order to modify the criteria for this water to account for these natural conditions. See EPA Technical Support Manual: Water body Surveys and Assessments for Conducting Use Attainability Analyses.
Sources Outside State Jurisdiction or Borders	Sources Outside State Jurisdiction or Borders. The source of the impairment is beyond the borders of the state; therefore, the state has no jurisdiction over the management of that source.
Upstream Source	Upstream Source. After studies, the source continues to be unknown, but it is known to be upstream of the boundaries of the Assessment Unit.
Sediment Resuspension (Clean Sediment)	Sediment Resuspension (Clean Sediment). Bottom sediment is resuspended into the water column.
Sediment Resuspension (Contaminated Sediment)	Sediment Resuspension (Contaminated Sediment). Bottom sediment is resuspended into the water column.

Suspected Sources	Description of Suspected Causes of Impairment
Forced Drainage Pumping	Forced Drainage Pumping.
Naturally Occurring Organic Acids	Naturally Occurring Organic Acids. Organic Acids contained in the surrounding soils or substrate that affect the pH.
Transfer of Water from an Outside Watershed	Transfer of Water from an Outside Watershed. Water being transferred from one location to another changes the dynamic of the receiving stream or lake.
Wet Weather Discharges (Non-Point Source)	Wet Weather Discharges (Non-Point Source). Usually associated with elevated Pathogen counts during wet weather events where a specific point source could not be identified.
Upstream/Downstream Source	Upstream or Downstream Source. This source can be used when another source has already been identified upstream or downstream of the impairment. Typically, this source can be used when an impairment affecting fish is spread up and down a stream due to fish migration.
Natural Sources	Natural Sources. Natural Sources can represent a combination of factors that are natural occurring, but one particular source could not be identified.
Agriculture	Agriculture. Agriculture can represent a wide array of potential Agriculture related sources. Agriculture is used when either land-use analysis or impairment point to some type of Agriculture being the source, but a specific type of Agriculture could not be identified.
Habitat Modification - other than Hydromodification	Habitat Modification - other than Hydromodification. Habitat modification has taken place, but a more specific type of habitat modification could not be identified.
Silviculture, Fire Suppression	Silviculture, Fire Suppression. Impacts from the suppression of fire on forested lands.
Reclamation of Inactive Mining	Reclamation in progress in the watershed may be the source of temporary water quality impairments.
Inappropriate Waste Disposal	Inappropriate Waste Disposal. Pollution releases to receiving waters involving inappropriate disposal of solid wastes or other wastes that may contain conventional or hazardous pollutants or that can degrade aquatic habitats or otherwise impair aesthetic amenities.
Pesticide Application	Pesticide application (such as copper sulfate) to control nuisance algae or non-native aquatic species
Watershed Runoff following Forest Fire	Watershed Runoff following Forest Fire. Deforested lands due to fire or catastrophic fire that result in higher levels of erosion and sediment runoff.
Low Water Crossing	Instances where there is a dirt road directly crossing through the streambed. These are in rural area and there is usually no planning or engineering designs involved.
Impervious Surface/Parking Lot Runoff	Impervious Surface/Parking Lot Runoff. Runoff from a paved or impervious surface.
Coal Mining	Coal Mining: Pollution from aspects of coal mining including pre SMCRA and post SMCRA operations
Silviculture Activities	Silviculture Activities: Pollution from aspects of forest harvesting including both registered and non-registered operations.
Unspecified Domestic Waste	Unspecified Domestic Waste: Impacts related to discharges of improperly or non treated human waste
Sewage Discharges in Unsewered Areas	Sewage Discharges in Unsewered Areas: Impacts from both failing septic systems and straight pipes.

Suspected Sources	Description of Suspected Causes of Impairment
Unspecified Urban Stormwater	Unspecified Urban Stormwater: Generalized Impacts from stormwater in urban areas.
Unspecified Unpaved Road or Trail	Unspecified Unpaved Road or Trail: Impacts related to runoff or development of unpaved roads or trails.
Unspecified Land Disturbance	Unspecified Land Disturbance: Runoff from disturbed land.
Potash Mining	Potash Mining. Mining for Potash (Potassium Ore).
Manure Runoff	Manure Runoff. Runoff from the surrounding land features contains high levels of manure.
Unrestricted Cattle Access	Unrestricted Cattle Access. Cattle have unrestricted access to the stream affecting the riparian vegetation, streambank stability, or some other habitat or flow related issue.
Contaminated Groundwater	Contaminated Groundwater. Contaminants from the underlying groundwater leaching into the surface water.
Rural (Residential Areas)	Rural (Residential Areas). Houses and surrounding land disturbances cause a water to not meet its uses
Urban Runoff/Storm Sewers	Urban Runoff/Storm Sewers. Runoff from an urbanized area as a result of a wet-weather event.
Coal Mining (Subsurface)	Coal Mining (Subsurface). Coal mining that is conducted primarily below ground.
Lake Fertilization	Lake Fertilization.
Introduction of Non-native Organisms (Accidental or Intentional)	Introduction of Non-native Organisms (Accidental or Intentional). The introduction of organisms (plant or animal).
Runoff from Forest/Grassland/Parkland	Runoff from Forest/Grassland/Parkland
Seafood Processing Operations	Facilities where seafood are processed prior to sell or distribution.
Accidental release/Spill	Accidental release/Spill: Unintentional Release of a substance/pollutant from a container/vehicle to the surrounding environment.
Marina Related Shoreline Habitat Degradation	Marina Related Shoreline Habitat Degradation: Anthropogenic modifications to shoreline habitat including removal of riparian vegetation and filling of wetlands, dredging and deepening of near shore waters, bank armoring, and dock construction associated with marina development.
Fire Retardant Slurry	Sodium ferrocyanide is added to fire retardant slurry as an anti-caking agent and corrosion inhibitor. Scientific literature indicates that sodium ferrocyanide can degrade into free, or amenable, cyanide in the presence of ultraviolet light, such as sunlight, and in water.
Legacy coal extraction	Impacts in areas that have been reclaimed and bond released under permit but have caused problems with the stream segment to which it drained related to historic coal mining operations.
Test Source	Legacy impacts from inadequately reclaimed surface or underground mining, often related to historic coal mining operations. See background information in ACID MINE DRAINAGE PREDICTION (EPA 530-R-94-036).